SIPHONAPTERA (FLEAS) OF MESA VERDE NATIONAL PARK, MONTEZUMA, COLORADO

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Mr. Charles L. Douglas[2] submitted a collection of parasitic arthropods to me for determination in 1963, when he held the position of biologist for the Wetherill Mesa Archeological Project.[3] This report refers to the Siphonaptera collected from smaller mammals he trapped as a part of a larger study he was conducting in cooperation with the National Park Service at Mesa Verde National Park. An examination of the flea fauna proved to be very interesting, and Mr. Douglas has granted me the privilege of publishing the list of fleas, including comments on occurrence and distribution.

Collections were made between elevations of approximately 6,800 and 8,000 feet above sea level at several geographic locations. The predominant plant cover at Mesa Verde National Park is pinyon-juniper woodland.

Fourteen species of fleas were collected. The host animals were the deer mouse, *Peromyscus maniculatus*, the pinyon mouse, *Peromyscus truei*, and the Colorado chipmunk, *Eutamias quadrivitattus*. Most of the fleas were from the mice with but a minor series from the chipmunk. One is impressed by the number of species of fleas taken from the three host species in the somewhat restricted geographical area.

A list of species of fleas identified are tabulated below. Beneath each host the species of flea parasites are listed.

Peromyscus maniculatus	Peromyscus truei	Eutamias quadrivitattus
Callistopsyllus deuterus		
Catallagia decipiens		
Epitedia stanfordi	*Epitedia stanfordi*	*Epitedia stanfordi*
Malaraeus sinomus	*Malaraeus sinomus*	*Malaraeus sinomus*
Malaraeus telchinum	*Malaraeus telchinum*	*Malaraeus telchinum*
Megarthroglossus procus	*Megarthroglossus procus*	*Megaroglossus procus*
		Monopsyllus eumolpi eumolpi
Monopsyllus wagneri wagneri	*Monopsyllus wagneri wagneri*	*Monopsyllus wagneri wagneri*
Orchopeas leucopus	*Orchopeas leucopus*	

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Peromyscopsylla hesperomys adelpha	*Peromyscopsylla hesperomys adelpha*	*Peromyscopsylla hesperomys adelpha*
	Phalacropsylla allos	
	Rhadinopsylla sectilis goodi	
Stenistomera macrodactyla		
Stenoponia (ponera or americana)	*Stenoponia (ponera or americana)*	

Of the fourteen species listed, six are found on the three hosts. Two species have been taken from both species of *Peromyscus*, with three only collected from *P. maniculatus*. *Monopsyllus eumolpi eumolpi* was the only species apparently restricted to the chipmunk, with *Phalacropsylla allos* and *Rhadinopsylla sectilis goodi* confined to the pinyon mouse.

Of total numbers of fleas collected there were 81 *Monopsyllus wagneri wagneri* and 75 *Peromyscopsylla hesperomys adelpha*. Next in abundance was *Epitedia stanfordi* with 53 specimens. These were followed by 15 *Malaraeus sinomus*, 14 *Megarthroglossus procus*, 10 *Phalacropsylla allos*, and 6 *Orchopeas leucopus*. Other species collected were either as single specimens or from two to five specimens of each species.

In a recent study of fleas of the Nevada Test Site (Beck & Allred, 1966), a number of species listed for that area have been found in this study. Although the Nevada study was mainly in desert lowland, the species listed from there and those also found at the Mesa Verde location are generally similar in geographical distribution. The Nevada specimens were collected either in foothills or at higher elevations on mesas and low desert mountains. A brief review of Hubbard's study (1947) and that by Beck (1955), and more recently by Stark (1958), reveals for the most part, that the fleas taken at Mesa Verde National Park by Douglas are those characteristic of elevations of about 5,000 feet above sea level or higher. This would have special reference, of course, to such states as Arizona, New Mexico, Colorado, Utah, Nevada, Idaho, and perhaps parts of Wyoming.

Of significant interest to the writer was the encounter with specimens of the genus *Stenoponia*. At this writing it is difficult to make a firm, specific identification. The specimens show characteristics of both species as described in the literature; namely, *S. ponera* and *S. americana*.

In more than fifteen years of concentrated collecting by survey parties sent out from the Zoology and Entomology Department, Brigham Young University, Provo, Utah, no specimens of the interesting genus *Stenoponia* have been encountered in either Utah or Nevada. In Utah especially, collecting has been done at all elevations in varying ecological environments. It is strange that *Stenoponia* has not broken the desert plateau barrier to the west. It would

be interesting to find out if careful collecting toward the north of Mesa Verde National Park would provide duplicate collections in kind of species. The southwest corner of Colorado has vast pinyon-juniper woodlands extending along the border of Utah, and there is a continuous belt of growth out of Colorado to the foothills of the La Sal Mountains near Utah.

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